PROCEEDINGS

of the

American Society

of

Civil Engineers

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AMERICAN SOCIETY OF CIVIL ENGINEERS

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SOCIETY AFFAIRS

THE PHILADELPHIA CONVENTION

The official program of the Philadelphia Convention of the Society, October 4-9, 1926, recently released to the membership, gives ample details of the various treats in store for members who may be fortunate enough to attend. The bare information of the events scheduled, however, can scarcely convey a complete realization of the really excellent character of the meetings planned.

Of course, the ceremonies incident to a large Society Convention, the prominent engineers present from this and other countries, the President's Annual Address, and the interesting—not to say fascinating—social features, all make an impressive array of events. But perhaps the outstanding incidents of this busy week, at least to the average member, will be found in the more strictly technical and Society events.

An engineer would indeed be difficult to please if he could not find something in the Conference of Local Sections and in the really outstanding programs of the Technical Divisions, which would almost impel him to attend.

Seldom has the Society been privileged to present a more imposing schedule of substantial attractions—attractions which appeal not only for their inherent merit but for the number included. This combination will be difficult to resist and the Convention should indeed prove a magnet for many members.

September Society Meeting

The regular meeting of the Society on September 8, 1926, was devoted to the paper by R. D. Goodrich, M. Am. Soc. C. E., on "Straight Line Plotting of Skew Frequency Data".

In the absence of the author abroad, the paper was presented by E. P. Goodrich, M. Am. Soc. C. E., who explained the basis on which the method was established and demonstrated, by the use of lantern slides, its application to frequency data.

Following Mr. Goodrich's explanation, the subject was discussed by H. Alden Foster, Assoc. M. Am. Soc. C. E., and Arne Fisher, Statistician of the Western Union Telegraph Company.

The report of the Tellers on the canvass of the Second Ballot for Officers for 1927, as given on page 414 of the September, 1926, *Proceedings*, was read. Director Willard T. Chevalier presided, the attendance being about 50.

An Opportunity You May Be Neglecting

The Engineering Societies' Employment Service has a function which does not seem to be appreciated generally by the membership. Perhaps members have not felt that the Service has a dignity worthy of their co-operation. The thought may have been that it is only for draftsmen, axemen and rodmen, and that it is inconsistent with the standing of a Corporate Member of the Society to make known to the Employment Service his professional attainments and his desire to be known as in the field for employment. Such an attitude not only prevents the Society's Employment Ser-

vice from developing to its full capacity, but actually causes a distinct loss to the Society, the inquirer, and to the individual members.

Calls for Engineers

At not infrequent intervals the Society's Headquarters in New York has been turned to by eminent and responsible parties for advice with regard to persons qualified to undertake works of large magnitude and involving great responsibility, and, incidentally, paying large fees. The office is manifestly in a distinctly unfortunate position unless it is able to comply adequately. In these events, the Secretary's office turns to the Engineering Societies Employment Service and asks "Who of our members have furnished you with their qualifications and expressed a desire to be kept in mind when an opportunity of this kind offers?" and from that list, incomplete as it may be, the answer to the inquiry must be made—an answer which, it is recognized, does not fully satisfy the desires of the inquirer, nor express the full possibilities of the Society Membership.

The Manager of the Employment Service will treat any information as confidential if so stipulated or render only the kind of attention that the member himself indicates. To ask to be recorded as available for expert testimony; to act as arbiter, as desirous of a change of employment or location, or even as desirous of having the opportunity of looking into such projects as may arise is quite different from saying "I am out of a job and will take anything". The Employment Service will make intensive efforts in the latter case and maintain a waiting attitude in the former.

Complete Professional Records Needed

The inquiries which are received and which carry with them the possibilities of large fees almost invariably are accompanied by unusual specifications. One inquiry now in hand and which should be filled by a member of the Society requires, in addition to other stipulations, the ability to speak Spanish fluently. Other inquiries similarly make requirements that in general would be had by only those members who, in prosperous times at least, would not be out of a job.

The Employment Service has two distinct functions, one getting jobs for men and the other getting men for jobs and the better the lists in hand, the better the service that may be rendered to all concerned.

Allievi's Book on Water Hammer Available

One of the few recognized statements of the complicated and abstruse subject of Water Hammer is by the noted Italian engineer, Lorenzo Allievi, who has spent a lifetime in studying this important principle of hydraulics. Thanks to the interest and efforts of E. E. Halmos, M. Am. Soc. C. E., this important work now appears in English for the first time.

The whole translation is comprised within two pamphlets, 7½ by 10½ in. in size. In the first (about 130 pages) the body of the extensive theory and its application is given in full; a second similar booklet contains the 64 diagrams and graphs supplementary to the text. The index is included as a separate leaflet.

Mr. Allievi, himself, secured the sum necessary for printing his study in English. However, the Society and the American Society of Mechanical Engineers, jointly, are undertaking to distribute it to American engineers. Any member who desires a copy may secure it on application to the Secretary of the Society.

American engineers are thus indebted to various agencies for making this monumental study available to them.

Society Appointments

Members have been appointed to act for the Society in the following capacities:

National Research Council, Division of Engineering and Industrial Research: D. L. Turner, M. Am. Soc. C. E.

Sectional Committee on Standard Specifications for Cement: Thaddeus Merriman, Richard L. Humphrey, and A. E. Phillips, Members, Am. Soc. C. E.

Sectional Committee on Standards for Drawings and Drafting Room Practice: R. S. Patton, M. Am. Soc. C. E.

American Association for the Advancement of Science: David G. Anderson and William Bowie, Members, Am. Soc. C. E.

Committee to Report on Physical and Financial Relations Between the Local Sections of National Societies and Local Engineering Societies: C. E. Beam, Assoc. M. Am. Soc. C. E.

List of Official Nominees

The following is the list of Official Nominees for the offices to be filled at the Annual Election of the Society on January 19, 1927, together with brief biographical sketches of the candidates:

For President, to Serve One Year:

JOHN F. STEVENS, New York, N. Y.

For Vice-Presidents, to Serve Two Years:

JOHN C. HOYT, Washington, D. C. ..... To Represent Zone II
ARTHUR E. MORGAN, Dayton, Ohio ..... " " " III

For Directors, to Serve Three Years:

GEORGE J. RAY, Hoboken, N. J. ..... To Represent District No. 1
GEORGE L. LUCAS, New York, N. Y. ..... " " " " 1
FRANK O. DUFOUR, Easton, Pa. ..... " " " " 4
HARRY W. DENNIS, Los Angeles, Calif. ..... " " " " 11
CON M. BUCK, Topeka, Kans. ..... " " " " 14
JACOB H. BRILLHART, Fort Worth, Tex. ..... " " " " 15

Biographical Sketches of Official Nominees

John Frank Stevens

(Official Nominee for President)

Born April 25, 1853, West Gardner, Me. (Common and Normal Schools, Maine; Bates Coll., LL.D., 1922 (Honorary))—1874-1876 Rodman, Instrumentman, and Asst. Engr., City of Minneapolis, Minn.: 1877-1878 in charge of surveys, Sabine Pass & Northwestern Ry., Texas: 1879-1880 Asst. Engr., Denver & Rio Grande Ry., in charge of mountain location and bridge construction: 1880-1881 Asst. Engr., Chicago, Milwaukee & St. Paul Ry., locating main lines across Iowa and on location of other lines: 1882 Engr. for Contractors, Canadian Pacific Ry., on 1 000-mile contract across plains of Northwest Territory: 1883 Asst. and Div. Engr., C. P. Ry., on location in Rocky and Selkirk Mountains: 1884-1885 Asst. and Div. Engr., C. P. Ry., on location in Selkirk and Gold Ranges and construction of line from Columbia River to Shuswap Lakes: 1886 Asst. Engr., C. M. & St. P. Ry., in charge of construction of various lines: 1887-1888 Prin. Asst. Engr., Duluth, South Shore & Atlantic Ry., on location and construction of line from Sault Ste Marie, Mich., to Duluth, Minn.: 1889 Asst. Engr. on location, Spokane Falls & Northern Ry., Loon Lake to International Boundary; also Asst. Engr., exploration, Great Northern Ry., in Rocky Mountains: 1890-1903, successively, Prin. Asst. Engr., Asst. Chf. Engr., Chf. Engr., and Gen. Mgr., Great Northern Ry., location and construction of line across Cascade Mountains, State of Washington, in charge of engineering on all lines west of Dakota; in charge of all engineering, and of operation, of System: 1903-1905, first Chf. Engr., and then Vice-Pres., operation, Chicago, Rock Island & Pacific Ry.: 1905-1907, Chf. Engr., Panama

Canal; also, part of 1907, Chairman, Isthmian Canal Comm.: 1907-1909 Valuation Engr., and Vice-Pres. in charge of operation, New York, New Haven & Hartford Ry.: 1909-1911 Administration Head, in charge of location and construction, Oregon Trunk Ry. and Oregon Elec. Ry.; and Pres., Spokane, Portland & Seattle Ry.: 1912-1917 Cons. Engr., New York, N. Y., engaged on work in various parts of United States and Spain: 1917-1923 World War Service; 1917-1919 Chairman, Comm. of Ry. Experts to Russia; 1919-1923 Pres., Inter-Allied Tech. Board, representing eight allied nations—United States, England, France, Italy, Czechoslovakia, Japan, China and Russia (Kolchak Govt.)—administration and operation all Russian Railways occupied by foreign troops, especially the Chinese Eastern Ry.: 1923 to date, Cons. Engr. and Expert in the various branches of railway activities: Hon. M. Am. Soc. C. E.; Holder of John Fritz Gold Medal; Hon. M., Northwestern Soc. of Engrs.; Hon. M., Chinese-Am. Assoc. of Engrs.; Member, Soc. of Am. Military Engrs.; Engrs. Club of Philadelphia.

John Clayton Hoyt

(Official Nominee for Vice-President)

Born June 10, 1874, Lafayette, N. Y. (Andover, N. Y., Academy, 1893; Cornell Univ., C. E., 1897)—1897-1899 with Cornell Hydraulic Laboratory Constr. Co., U. S. Deep Waterways Comm., and Bureau of Yards and Docks, U. S. Navy Dept.: 1900-1902, with U. S. Coast and Geodetic Survey: 1902 to date, with U. S. Geological Survey, since 1911 as Hydr. Engr. in charge of Surface Water Div.; has conducted studies of water resources in various States and in Hawaii and Alaska, and has contributed largely to the development of methods and equipment now commonly used in measuring flowing water: co-author with N. C. Grover, M. Am. Soc. C. E., of "River Discharge" (1907); also author of many reports and papers printed by the U. S. Government and in technical journals: U. S. Representative, 13th International Congress of Navigation, London, 1923; Representative, U. S. Dept. of the Interior, World Power Conference, London, 1924: Member, Am. Soc. C. E. (Past-Director, 1920-1922); Washington Soc. of Engrs. (Secy., 1908-1915; Pres., 1916); Washington Academy of Sciences (Vice-Pres., 1916); Sigma Xi; Cosmos Club (Pres., 1921), Washington, D. C.; and Director, Union Trust Co., Washington.

Arthur Ernest Morgan

(Official Nominee for Vice-President)

Born June 20, 1878, Cincinnati, Ohio (Part of one semester at Univ. of Colo.; Univ. of Colo., Sc. D., 1923 (Honorary))—1902-1907 Private practice, St. Cloud, Minn.; 1907-1909 Superv. Engr., U. S. Drainage Investigations, engaged in planning reclamation works in Colorado and States bordering Lower Mississippi: 1909-1915 Pres., Morgan Eng. Co., Dayton, Ohio: 1915 to date Vice-Pres. Morgan Eng. Co., Memphis, Tenn., and Pres., Dayton Morgan Eng. Co., Dayton: 1913-1921 Chf. Engr., Miami Conservancy Dist., Dayton: 1921-1926, Chf. Engr. (Dayton Morgan Eng. Co.), Pueblo Conservancy Dist.; personally or through Morgan Eng. Cos., planned and executed about

100 water-control projects in various States, including canals, bridges, dams, levees, railroads; drafted, with legal assistance, revision of Minnesota Drainage Law (1905); Arkansas (1909); Ohio Conservancy Law (1913); and Colorado (1921): 1909 to date Cons. Engr. on hydraulic problems: 1921 to date Pres., Antioch Coll.: author of Government publications on reclamation of swamp lands and of articles in technical journals; had general direction of first eight volumes, Miami Conservancy Technical Reports: author of articles on education in *Atlantic Monthly, Century,* etc.: Vice-Pres., Am. Unitarian Assoc.; Vice-Pres., Moraine Park School; Member, New England Water-Works Assoc.; Soc. for the Promotion of Eng. Education; Am. Academy of Political and Social Science; National Economic League; Engrs.' Club of Dayton, etc.

George Latimore Lucas

(Official Nominee for Director, District No. 1)

Born January 5, 1877, New York, N. Y. (Trinity School, New York, N. Y., 1894; School of Mines, Columbia Univ., C. E., 1898)—1898-1904, Draftsman, Checker, and Insp. of Materials: 1904-1905, Res. Engr., Castlegould, on construction of buildings, sewers, roads, wharfs, etc.: 1906-1911, Asst. Engr. in charge of design of portion of rapid transit railroads, New York, N. Y., subway structures, stations, bridge, etc.: 1911-1922 Gen. Insp. of Materials-Div. Engr., Materials Div., Public Service Comm., State of New York, and successors, on inspection of materials for the construction and equipment of rapid transit railroads; in addition, during 1918, in charge of the New York Branch, Building Materials Div., War Industries Board: 1923-1924, Acting Chf. Executive Officer, Transit Comm., City of New York: 1925 to date Div. Engr., Board of Transportation, City of New York; in addition, since 1922, Consultant on Materials to Chf. Engr., New York and New Jersey Vehicular Tunnel Comm.: Member, Am. Soc. for Testing Materials and of Municipal Engineers of City of New York.

George Joseph Ray

(Official Nominee for Director, District No. 1)

Born March 24, 1876, Metamora, Ill. (Univ. of Illinois, B. S., 1898; C. E., 1910; Lafayette Coll., D. Sc., 1916 (Honorary))—1898-1903 with Eng. and Operating Depts., Illinois Central R. R., holding various positions from Rodman to Roadmaster: 1903-1908, Div. Engr., Delaware, Lackawanna & Western R. R.: Jan. 1, 1909, to date, Chf. Engr., D. L. & W. R. R. (except 1919 and first part of 1920 while acting as Eng. Asst. to Regional Director, Eastern Region, U. S. Railroad Administration), in charge of all maintenance and construction, including roadway and tracks, signals, power plants, docks and wharves, terminals, grade crossing elimination, and extensive revisions of alignment; located and built revised line of D. L. & W. R. R. between Clarks Summit and Hallstead, Pa., including the Tunkhannock Viaduct, the largest concrete bridge in the world: Past-Pres., New York Section, Am. Soc. C. E.; Past-Pres., Am. Ry. Eng. Assoc.; and Member, Am. Soc. for Testing Materials.

Frank Oliver Dufour

(Official Nominee for Director, District No. 4)

Born January 1, 1873, Washington, D. C. (Washington, D. C., Technical High School, 1892; Lehigh Univ., C. E., 1896)—1896-1898 Asst. to Div. Engr., Lehigh Val. R. R., on preliminary location and construction of Eastern & Northern R. R.: 1898-1902 Instr. in Civ. Eng., Lehigh Univ.: 1902-1903 Asst. Prof., Civ. Eng., in charge of Civ. Eng. Dept., Univ. of Cincinnati: 1903-1904 Acting Prof., Bridge Eng., Univ. of Wisconsin: 1904-1905 Asst. Prof., Civ. Eng., Univ. of Vermont: 1905-1913 Asst. Prof., Structural Eng., Univ. of Illinois: during teaching period was engaged in consulting practice and during vacations was employed by American Bridge Co., at its Athens, Pittsburgh, and Ambridge, Pa., and Brooklyn, N. Y., plants; with Bridge Engr., Lehigh Val. R. R., on bridge and masonry work and on construction of Lehigh & Lake Erie and Bucks Mountain & Hayes Creek Branches; also traveled five months in Europe studying bridge and building construction and iron and steel works, including a complete inspection of the Krupp Works, at Essen, Meppen, and Rhinehausen, Germany: 1913-1914 Prin. Asst. Engr., D. A. Keefe, Cons. Engr., Athens, Pa., on design and construction work, including design of several bridges across the Susquehanna River: 1914-1915 Senior Structural Engr., Interstate Commerce Comm., Val. Div., Central Dist., Chicago, Ill., on valuation of railroads: 1915-1921 Asst. Chf. Structural Engr. and Chf. Structural Engr., Stone & Webster, Boston, Mass., in charge of design of structures and purchase of materials, including several power stations, $10 000 000 picric acid plant, $11 000 000 arsenal, industrial buildings, work on layout of Hog Island Shipyard, etc.; May-Aug., 1918 Special Representative, American International Shipbuilding Corporation, in Canada and United States, increasing output of shops and designing layout of new shops, including two 10 000-ton shops: 1921 to date, Director, Civ. Eng. Dept., Lafayette Coll., Easton, Pa., and engaged in consulting practice: author of "Bridge Engineering" (1908), "Roof Trusses" (1908), and "Structural Drafting" (1911), as well as books for Correspondence Schools; also contributor to Society and other technical publications: Member, Iron and Steel Structures Committee, and Chairman of three sub-Committees, Am. Ry. Eng. Assoc.; Governor, Lehigh Valley Engrs. Club; Past-Pres., Lehigh Valley Section, Am. Soc. C. E.; Adviser, Student Chapter, Am. Soc. C. E., Lafayette Coll.; Past-Chairman, Special Committee on Structural Steel, Am. Soc. C. E.; Member, Joint Committee on Stresses in Structural Steel; National Committee on Timber Utilization; Sigma Xi.

Harry Whiting Dennis

(Official Nominee for Director, District No. 11)

Born March 18, 1879, Hornell, N. Y. (C. E., Cornell Univ., 1899.)—June-Oct. 1899 Rodman, Erie R. R.: Oct. 1899-May 1900 Draftsman, Wallace C. Johnson, Cons. Engr., Niagara Falls, N. Y.: May-Sept. 1900 Rodman and Acting Transitman, Dept. of State Engr., New York: 1900 Fall Semester, Instr.,

Mechanics and Hydraulics, Cornell Univ.: Jan. 1901-June 1904 and June-Nov. 1905 Draftsman and Designer, Niagara Falls Power Co. and Canadian Niagara Power Co., Niagara Falls, N. Y., on structural steel and machinery for hydro-electric plants: June 1904-June 1905 Leveler, Dept. of State Engr., New York, in charge of survey party: Nov. 1905-1909 in office of W. A. Brackenridge, Cons. Engr., on design and reports, miscellaneous hydro-electric developments, including one year as Res. Engr., building hydro-electric development for Wallkill River Co., at Walden, N. Y.: 1909 to date Southern California Edison Co., Los Angeles, Calif., as follows: Dec. 1909-July, 1926 Constr. Engr.; July 1, 1926 to date Chf. Civ. Engr.: 1924 to date Member of Committee on Arch Dam Investigation of Engineering Foundation and in charge of construction of Stevenson Creek Experimental Test Dam of Engineering Foundation.

Con Morrison Buck

(Official Nominee for Director, District No. 14)

Born November 10, 1873, Oskaloosa, Kans. (Oskaloosa High School 1891; Kansas State Agricultural Coll., B. S. 1896; M. S. 1898; C. E. 1916.)—Sept. 1898-April 1902 Chainman, Rodman, Transitman; 1902-1905 Div. Engr.; 1905-1909 Office Engr., Santa Fé Ry.: 1909-1913 private practice and Constr. Engr., Kansas City Southern Ry., Central Coal & Coke Co., and Santa Fé Ry.: 1914 to date Div. Engr., Santa Fé Ry.: Past-Pres., Kansas Eng. Soc.; Past-Pres., Kansas Section, Am. Soc. C. E.; Representative, Kansas Eng. Soc., on Am. Eng. Council; Member, Topeka Engrs. Club.

Jacob Herbst Brillhart

(Official Nominee for Director, District No. 15)

Born February 8, 1880, Springfield Township, York Co., Pa. (Juniata Coll., B. E. 1898; Lehigh Univ., C. E. 1904.)—June to Sept. 1902 Rodman, Crozier Land Assoc., Elkhorn, W. Va.; 1904-1905 Res. Engr., Pennsylvania Coal Co. No. 16 Colliery, Pittston, Pa.; 1905-1912 Guerber Eng. Co., Bethlehem, Pa., as follows: 1905-1906 Draftsman; 1907-1908 Asst. Engr.; 1908-1912 Chf. Engr.; designed first steel breakers built in anthracite coal fields, coal tipples, cement plants, etc.; 1912-1918 Chf. Engr., and 1918-1920 Cons. Engr., Mosher Mfg. Co., Dallas, Tex.; 1917-1920 Pres. and Gen. Mgr., Texas Structural Steel Co., Dallas, in charge of erection of steel buildings; 1920-1921, Pres., Eng. Service Co., Dallas; 1921 to date, Fort Worth Steel & Machinery Co., Fort Worth, Tex., as follows: 1921 to 1922 Mgr., Structural Dept. and Chf. Engr.; 1922 to date, Vice-Pres.; Past Vice-Pres., Dallas Builders Assoc.; Past-Pres., Tech. Club, and Past Vice-Pres., University Club, Dallas; Past-Pres., Texas Soc. of Civ. Engrs.; Past Vice-Pres., Fort Worth Purchasing Agts. Assoc.; Pres., Tech. Club, Fort Worth.

Local Sections*

Colorado.—August 19, 1926. Annual Meeting. The following officers were elected: President, Fred R. Dungan; Vice-President, Michael C. Hinderlider; and Secretary-Treasurer, Clifford A. Betts. Messrs. Ralph I. Meeker and Michael C. Hinderlider reported on the Summer Meeting at Seattle, Wash. Mr. Meeker gave a résumé of the information presented on the logging industry. Mr. Hinderlider told of the Bellingham trip into the logging country, the inspection of the Pacific fleet, and of the many large power dams he visted on the return trip through California. Attendance 26.

Los Angeles.—August 11, 1926. The subject of the meeting was "Attempts to Forecast Meteorological Conditions from a Study of Marine Temperatures and Currents and Marine Meteorology". An address was given by Dr. T. Wayland Vaughan, of Scripps Institute of Oceanography, at La Jolla, Calif., who set forth in a concise way the work that was being accomplished at the Institute. At his conclusion he introduced Major E. H. Bowie, Senior Meteorologist in charge of the United States Weather Bureau, at San Francisco, Calif., who described how weather forecasts are made. Dr. George W. McKuen spoke on "Estimates of Weather and Events Forecast". General discussion of the subject followed. Attendance 80.

Pittsburgh.—May 24, 1926. Annual Meeting. The following officers were elected: President, L. J. Riegler; Vice-President, John M. Rice; and Secretary-Treasurer, Nathan Schein. The annual dinner was held at which President Davison and Vice-President Humphrey were guests of honor. Junior membership prizes were awarded to Mr. Walter Eberle Miller, of the Carnegie Institute of Technology, and Mr. Donald McNeil, of the University of Pittsburgh. Addresses were delivered by President Davison, Vice-President Humphrey, Samuel A. Taylor, President of the American Institute of Mining and Metallurgical Engineers, and Messrs. John N. Chester, Maurice R. Sharff, L. J. Riegler, and E. G. Lang, Director of the Department of Public Works, City of Pittsburgh. The meeting was attended by 115 members of the Section and 30 members of the Student Chapters of the University of Pittsburgh and the Carnegie Institute of Technology.

Sacramento.—August 3, 1926. Carl Maughmer, Assistant Engineer of the Southern Pacific Railroad, addressed a Joint Meeting of the Section and the Sacramento Chapter of the American Association of Engineers, on "Snow Sheds and Snow Fighting". S. B. Morris, Past-President of the Pasadena Section, was a guest at the meeting. Attendance 44.

August 10, 1926. Mr. Thomas H. Claussen read a paper on "The Welfare of the Younger Members of the Profession". Resolutions were adopted in commendation of the work of Mr. N. R. Taylor, Meteorologist in charge of the United States Weather Bureau, at Sacramento. Attendance 18.

San Francisco.—June 15, 1926. Sixty-eight members and guests were present at the dinner which preceded the business meeting. A. Kempkey, Consulting Engineer of San Francisco, gave an address on "The Gordon Valley Project." Attendance 80.

* For list of Local Section Officers, Rules, etc., see 1926 Year Book, p. 88.

Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 110 and 111 of the Year Book for 1926.

Book Notices*

(August 2 to August 31, 1926)

Aerostatics. By Edward P. Warner. (Ronald Aeronautic Library). N. Y., Ronald Press Co., 1926. 112 pp., diagrams, 9 x 6 in., cloth. $3.25.

This textbook is based on the first part of a course in the theory of airship design given at the Massachusetts Institute of Technology.

Aircraft Power Plants. By Edward T. Jones and Others. (Ronald Aeronautic Library.) N. Y., Ronald Press Co., 1926. 208 pp., illus., diagrams, 9 x 6 in., cloth. $4.25.

Various types of heat engines are discussed from a thermodynamic point of view and the advantages and disadvantages of each and the factors that affect performance are indicated. Propellers are treated in the same manner. A section on water-ballast recovery is included. This book is intended for designers of aircraft and for pilots.

Calculus. By Herman W. March and Henry C. Wolff. Second Edition. N. Y., McGraw-Hill Book Co., 1926. 398 pp., 7 x 5 in., cloth. $2.50.

This is an elementary textbook for beginners who are students of science or technology, in which the authors have endeavored to place the emphasis on the mode of thought.

Conquests of Engineering. By Cyril Hall. Lond., Blackie & Son, Ltd., [1926]. 288 pp., illus., 8 x 5 in., cloth. 3s 6d.

Bridges, tunnels, canals, lighthouses, and docks are the works discussed in this popular account of civil engineering, including some famous examples.

Diesel Engines: Marine, Locomotive, Stationary. By David Louis Jones. N. Y., Norman W. Henley Publishing Co., 1926. 565 + 39 pp., illus., diagrams, 9 x 6 in., cloth. $5.00.

A manual for operators of Diesel engines, prepared by the instructor in the Diesel Engine Department of the U. S. Navy Submarine School, in which the actual construction and operation of the various parts of commercial engines are discussed.

Die Fernsprechanlagen mit Wähler-Betrieb. By Fritz Lubberger. Third Edition. München u. Berlin, R. Oldenbourg, 1926. 277 pp., pl., 10 x 7 in., paper. 11 mk.

This is a systematic technical discussion of the problems involved in the construction of automatic telephone systems, the possible methods of solving them, and the advantages and disadvantages of these various possibilities. The six leading commercial systems are described in detail.

Hydrology and Ground Water. By J. M. Lacey. Lond., Crosby Lockwood & Son, 1926. 159 pp., diagrams, 9 x 6 in., cloth. 12s 6d.

A comprehensive work on hydrology, ground-water, and surface flow. This work is intended to aid engineers engaged in water-works, irrigation, or drainage plans.

* The statements made in these notices are taken from the books themselves and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by publishers.

International Critical Tables of Numerical Data, Physics, Chemistry, and Technology. Prepared under the Auspices of the International Research Council and the National Academy of Sciences by the National Research Council of the United States of America. N. Y., McGraw-Hill Book Co., 1926. 415 pp., diagrams, 11 x 9 in., cloth. $60.00.

This book, the result of the co-operative work of many specialists, gives the values for physicial and chemical constants which they have selected as the "best" values, from the great mass of determinations recorded in scientific and technical literature before the year 1924. The work supplements the "International Annual Tables of Constants," in that it removes the necessity of examining all the volumes of the latter in most cases, by giving immediately the prepared value.

Kran- und Transportanlagen für Hütten-, Hafen-, Werft-, und Werkstatt-Betriebe. By C. Michenfelder. Second Edition. Berlin, Julius Springer, 1926. 683 pp., illus., diagrams, 11 x 8 in., boards, 67,50 mk.

This work which is an illustrated descriptive treatise on modern hoisting and conveying machinery, particularly as used in smelters, rolling-mills, shipyards, and harbors, is intended to assist in the selection of equipment. The text follows the course of operations in these various industries, explaining the problems of transportation and the manner in which they can be met.

Masonry Structures. By Frederick P. Spalding. Second Edition, Revised and Enlarged, by A. Lincoln Hyde and Ernest F. Robinson. N. Y., John Wiley & Sons, 1926. 586 pp., illus., diagrams, tab., 9 x 6 in., cloth. $5.00.

The aims of the author has been to supply a textbook on the design of masonry structures, including concrete structures, which shall present the fundamental principles briefly and systematically.

Mathematics for Engineers. By Raymond W. Dull. N. Y., McGraw-Hill Book Co., 1926. 780 pp., 8 x 5 in., cloth. $5.00.

This book is intended as a convenient work of reference. The entire range of mathematics ordinarily used in engineering is reviewed, the examples are worked out with greater fullness than usual, and the text is arranged to facilitate ready understanding of each question.

North Manchuria and the Chinese Eastern Railway. By I. A. Mihailoff, Editor. Harbin, China, Chinese Eastern Ry., 1924. 454 pp., illus., maps, 12 x 9 in., fabrikoid. (Price not quoted).

This treatise contains a systematic illustrated account of industrial conditions in North Manchuria, prepared by the Economic Bureau of the Chinese Eastern Railway. Data are given on agriculture, forests, the trade in grain, cattle, lumber, and coal, milling and manufacturing, banking, currency, etc. Ways of communication, especially the Chinese Eastern Railway, are described.

Phototopography: A Manual of Photographic Surveying Methods. By Arthur Lovat Higgins. Cambridge, University Press, 1926. 130 pp., illus., diagrams, pl., 8 x 5 in., cloth. $2.40. (Gift of Macmillan Co., N. Y.)

The author has outlined the essential principles of the operations of some of the best-known exponents of the photographic method as a practical manual for surveyors and students.

Ports and Terminal Facilities. By Roy S. MacElwee. Second Edition, Enlarged. N. Y., McGraw-Hill Book Co., 1926. 446 pp., illus., diagrams, 9 x 6 in., cloth. $5.00.

The new edition of this work contains lessthan 15% of the original work, and discusses only the construction and equipment of ports—the characteristics of well co-ordinated seaports and wharf design, equipment and arrangements for general cargo wharves and warehouses, passenger terminals, and facilities for handling ore, coal, liquids, and grain in bulk, and industrial harbor development.

Le Problème Actuel du Condenseur à Surface. By A. Delas. Paris, Revue Industrielle, 1926. 22 pp., illus., 8 x 5 in., paper. 5 fr.

The author describes the results of recent researches which have increased the efficiency of surface condensers by re-arrangement of the condenser tubes.

Ratio Chart in Business. By Percy A. Bivins. N. Y., Codex Book Co., 1926. 177 pp., charts, 8 x 6 in., cloth. $3.00.

This book contains a clear, detailed description of the methods of making ratio or logarithmic charts and a thorough explanation of many of its applications in industry and business.

Science of Flight and Its Practical Application, Vol. 1; Airships and Kite Balloons. By P. H. Sumner. Lond., Crosby Lockwood & Son, 1926. 168 pp., illus., diagrams, tab., 9 x 6 in., cloth. 16s.

After an introductory chapter on the British air policy, the author takes up successively the principles of aerostatics, the general construction of the dirigible, the airship in flight, the types of airships and their performances, and kite balloons. This volume is devoted to buoyant airships, and is based on the author's long experience in airship construction in the Air Ministry.

Stainless Iron and Steel. By J. H. G. Monypenny. N. Y., John Wiley & Sons, 1926. 304 pp., illus., diagrams, tab., 9 x 6 in., cloth. $6.00.

The author, Chief of the Research Laboratory, Brown Bayley's Steel Works, Sheffield, England, gives a detailed account of the properties of the various grades of stainless steel and of its micro-structural characteristics, with particular attention to the range of diverse materials included in the term, and to the influence of variations in composition and treatment on their properties.

Statik für Baugewerkschulen und Baugewerksmeister, Vol. 2; Festigkeitslehre. By Karl Zillich. Ninth Edition. Berlin, Wilhelm Ernst & Sohn, 1926. 157 pp., diagrams, tab., 7 x 5 in., boards. 3,40 mk.

A concise manual on the strength of structural materials, intended as a textbook and a ready reference book.

Steel Structures; Stresses in Simple Structures. By Leonard C. Urquhart and Charles E. O'Rourke. N. Y., McGraw-Hill Book Co., 1926. 278 pp., diagrams, tab., 9 x 6 in., cloth. $3.50.

The text is confined to simple structures and contains both graphical and analytical analyses, except in cases where the advantage of one method is marked. Both methods are illustrated by numerical problems.

Transport Aviation. By Archibald Black. N. Y., Simmons-Boardman Pub. Co., 1926. 245 pp., illus., tab., 9 x 6 in., cloth. $3.00.

A discussion of the various problems connected with commercial aviation, in which the author describes present developments here and abroad and studies the possibilities of the airplane as a means of transportation. He discusses the influence of design on cost of operation, general requirements of airplanes for commercial use, the design of passenger and freight airplanes, airways, landing fields, and the organization of air lines, including cost data.

Ueber die Wahl Eines Gaswerksofensystems. By L. Litinsky. Halle (Saale), William Knapp, 1926. 29 pp., illus., 10 x 7 in., paper. 1,50 r.m.

This pamphlet analyzes the various alternatives before the designer in the selection of generators for a gasworks and points out the relative merits of each.

Additions to the Reading Room

Mathematical and Physical Papers, 1903-1913. By Benjamin Osgood Peirce. Cambridge, Harvard University Press, 1926. 444 pp., 9 x 6 in., cloth, $5.00.

In this volume are assembled practically all the papers which Professor Peirce published in the last ten years of his life. These papers should prove of practical value to all investigators in the field of mathematics or physics.

Current Civil Engineering Literature

Key to Abbreviated References to Publications Indexed*

Abbreviated References.	Publication.	Place.
Am. C. Inst.	*American Concrete Institute, Proceedings* (Y.)	Detroit
A. I. E. E.	*American Institute of Electrical Engineers Journal* (M.)	New York
A. R. E. A.	*American Railway Engineering Association, Proceedings* (Y.)	Chicago
A. S. T. M.	*American Society for Testing Materials, Proceedings* (Y.)	Philadelphia
Am. Soc. C. E.	*American Society of Civil Engineers, Proceedings* (M.)	New York
Am. Soc. Mun. Impvts.	*American Society for Municipal Improvements, Proceedings* (Y.)	New York
Am. W. W. Assoc.	*American Water Works Association, Journal* (Bi-M.)	Baltimore
Am. Wood Prs. Assoc.	*American Wood Preservers Association, Proceedings* (Y.)	Chicago
Ann. P. et C.	*Annales des Ponts et Chaussées* (Bi-M.)	Paris
Ann. T. P. Belg.	*Annales des Travaux Publics de Belgique* (Bi-M.)	Brussels
Assoc. Ing. Gand.	*Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand* (Q.)	Ghent
Bost. Soc. C. E.	*Boston Society of Civil Engineers, Journal* (M.)	Boston
Can. Engr.	*Canadian Engineer* (W.)	Toronto
Cornell C. E.	*Cornell Civil Engineer* (M.)	Ithaca
Dock & Harbour	*Dock and Harbour Authority* (M.)	London
Eng.	*Engineering* (W.)	London
Eng. & Contr.	*Engineering and Contracting* (W.)	Chicago
Eng. Inst. Can.	*Engineering Institute of Canada, Journal* (M.)	Montreal
Eng. N. R.	*Engineering News-Record* (W.)	New York
Engrs. Soc. W. Pa.	*Engineers' Society of Western Pennsylvania, Journal* (M.)	Pittsburgh
Engr.	*Engineer* (W.)	London
Engrs. & Eng.	*Engineers and Engineering, Engineers' Club of Philadelphia* (M.)	Philadelphia
Gen. Civ.	*Le Génie Civil* (W.)	Paris
Gesund. Ing.	*Gesundheits Ingenieur* (W.)	Munich
Inst. C. E.	*Institution of Civil Engineers Minutes of Proceedings* (Q.)	London
Inst. Mun. & Co. Engrs.	*Institution of Municipal and County Engineers, Journal* (W.)	London
Int. Ry. Cong. Assoc.	*International Railway Congress Association, Bulletin* (M.)	Brussels
Land. Arch.	*Landscape Architecture* (M.)	Harrisburg
Mech. Eng.	*Mechanical Engineering* (M.) *Journal of the American Society of Mechanical Engineers*	New York
Mil. Engr.	*Military Engineer* (F.)	Washington
Min. & Metal.	*Mining and Metallurgy* (M.) *American Institute of Mining Engineers*	New York
Mun. & Co. Eng.	*Municipal and County Engineering* (M.)	Indianapolis
N. E. W. W. Assoc.	*New England Water Works Association, Journal* (M.)	Boston
N. Y. R. R. Club	*New York Railroad Club, Proceedings* (M.)	Brooklyn
Oest. Ing. Arch. Ver.	*Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift* (F.)	Vienna
Power	*Power* (W.)	New York
Rev. Gen.	*Revue Générale des Chemins de Fer* (M.)	Paris
Ry. Age	*Railway Age* (W.)	New York
Ry. Eng. & Main.	*Railway Engineering and Maintenance* (M.)	Chicago
Ry. Rev.	*Railway Review* (W.)	Chicago
Schw. Bauz.	*Schweizerische Bauzeitung* (W.)	Zurich
Sci. Am.	*Scientific American* (M.)	New York
Soc. Ing. Civ. Fr.	*Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus* (Q.)	Paris
Tech. Gemein.	*Technisches Gemeindeblatt* (F.)	Berlin
Ver. deu. Ing.	*Verein deutscher Ingenieure, Zeitschrift* (W.)	Berlin
West. Ry. Club	*Western Railway Club, Proceedings* (M.)	Chicago
West. Soc. Engrs.	*Western Society of Engineers, Journal* (M.)	Chicago
Zeit. Bau.	*Zeitschrift fur Bauwesen* (Q.)	Berlin
Z. d. Bauver.	*Zentralblatt der Bauverwaltung* (W.)	Berlin

* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

A. Applied Sciences

a. Processes of Calculation

2. Graphical and Nomographical Processes

Straight Line Plotting of Skew Frequency Data.* R. D. Goodrich. Am. Soc. C. E. Aug., '26.

Moments in Restrained and Continuous Beams by the Method of Conjugate Points.* Discussion: Jules D. Gedo, Esq. Am. Soc. C. E. Aug., '26.

Charts for Reinforced Concrete Poles.* Peter Gillespie and F. E. Wilson. Can. Engr., Aug. 3, '26.

Nomogramme für einfach bewehrte Platten und Balken.* (Nomogram for Simple Reinforced Slabs and Beams.) J. Wachsmann. Oest. Ing. Arch. Ver. July 23, '26.

B. Applied Mechanics

a. Mechanics of Solids (Strength of Materials)

2. Elastic Solids

Theorie Elementaire de la Torsion Simple des Prismes.* (Elementary Theory of the Simple Torsion of Prisms.) G. Pigeaud. Gen. Civ. July 24, '26.

6. Heterogeneous Solids (Reinforced Materials)

Stresses in Helically Reinforced Concrete Columns.* Discussion: J. H. Griffith, John Tucker, Jr., and Jacob Feld. Am. Soc. C. E. Aug., '26.

Distribution of Reinforcing Steel in Concrete Beams and Slabs.* Boyd S. Myers. Am. Soc. C. E. Aug., '26.

b. Hydraulics

2. Physical Hydraulics

Factors Governing Air Inlet Valves on Pipe Lines.* D. C. Henny. Eng. N. R. Aug. 19, '26.

Note sur la Theorie des Coups de Belier.* (Note on the Theory of Water-Hammer.) M. L. Bergeron. Soc. Ing. Civ. Fr. May, '26.

3. Industrial Hydraulics

Automatic Hydro-Electric Plant Designed for Peak Load Service.* Gardner C. George. Power July 27, '26.

Draft Tube Lined with Cast Iron at Big Creek No. 8 Plant.* Eng. N. R. July 29, '26.

The Humber Development of Newfoundland Power and Paper Company, Limited.* H. C. Brown. Eng. Inst. Can. Aug., '26.

The Geometry of the Helical Water Turbine.* Nicholas Popoff. Eng. Aug. 6, '26.

Die Bedeutung des Turbinen-Wirkungsgrades bei Niederdruck-Anlagen.* (The Importance of the Turbine Efficiency in Low-Pressure Plants.) Robert Dubs. Schw. Bauz. July 10, '26.

Das Wesen der spezifischen Drehzahl.* (On Specific Speeds.) Bruno Eck. Ver. deu. Ing. July 24, '26.

c. Pneumatics

3. Industrial Pneumatics

Ein neuer Windkraftmotor.* (A New Windmill.) Viktor Kudielka. Oest. Ing. Arch. Ver. July 9, '26.

C. Materials of Construction and General Processes

a. Lime, Cement, Mortar, Concrete, Brick, Bitumin, Timber, etc.

Use of Lime in Construction. J. S. Elwell. (Paper read Nat'l Lime Assoc.) Mun. & Co. Eng. July, '26.

Corrosion of Concrete.* Discussion: Thaddeus Merriman, John G. Ahlers, M. N. Clair, and R. H. Bogue. Am. Soc. C. E. Aug., '26.

Tests Show How Calcium Chloride Affects Concrete.* A. S. Levens. Eng. N. R. Aug. 5, '26.

Concrete Strength Made Uniform by Careful Proportioning.* Zara Witkin. Eng. N. R. Aug. 12, '26.

L'Application de la Pierre Artificielle ou Reconstituée à la Construction d'Edifices de Grande Architecture.* (The Use of Artificial or Reconstructed Stone for Building Large Buildings.) Joseph Mège. Soc. Ing. Civ. Fr. Pt. 5, '26.

Bestimmung der Druckfestigkeit von Mörtel und Beton.* (Determination of the Compressive Strength of Mortar and Concrete.) J. Bolomey. Schw. Bauz. Serial beginning July 10, '26.

b. Metals

Welded Steel Members and Joints Tested at Pittsburgh.* Eng. N. R. Aug. 12, '26.

Tests of Trusses Show Strength of Welded Joints.* H. H. Moss. Ry. Age Aug. 21, '26.

Ueber Kugellagerstahl.* (On Steel for Ball Bearings.) E. Houdremont and Hans Kallen. Ver. deu. Ing. July 31, '26.

f. Rock Excavation, Mining, Rock Removal

Abstracts of Institute Papers. Min. & Metal. Aug., '26.

g. Execution of Works, Specifications

4. Of Metal

Large Sliding Doors Designed for Easy Operation.* Eng. N. R. Aug. 19, '26.

5. Of Reinforced Concrete

Effective Form-Handling Cableway at Philadelphia Stadium.* Eng. N. R. Aug. 12, '26.

x. Miscellaneous

Amusement Park at Crystal Beach, Ont.* E. H. Darling. Can. Engr. July 20, '26.

h. Foundation, Bridge Piers, and Abutments

Constructing Heavy Foundations in a Salt Marsh.* G. W. Maker. Eng. N. R. July 29, '26.
Deep Caisson Cellar Walls Braced by Floor Steel before Erection of Columns.* Carlton S. Proctor. Eng. N. R. Aug. 5, '26.

j. Piles and Pile-Driving

Pile-Driving and Concreting Methods on a Large Sub-Structure Contract.* Frank W. Skinner. Eng. Serial beginning Aug. 13, '26.

k. Tunnels and Tunneling-Shields

The Timbering of Trenches, Shafts and Tunnels.* C. G. Kent. Engr. Serial beginning July 16, '26.
N. W. P. Has a Thoroughly Safe Tunnel.* William S. Wollner. Ry. Rev. July 24, '26.
Pipe Tunnel Under Gowanus Canal, Brooklyn, New York.* Discussion: Frederick L. Cranford, Charles W. Staniford and John F. O'Rourke. Am. Soc. C. E. Aug., '26.
Note sur la Démolition des Tunnels des Batignolles.* (Note on the Demolition of the Batignolles Tunnels.) Pierre Lévy. Soc. Ing. Civ. Fr. May, '26.

x. Miscellaneous

Tätigkeit der Eidg. Material-Prüfungsanstalt an der E. T. H. Zürich für 1924 und 1925.* (Work of the Federal Materials Testing Institution at the E. T. H., Zurich, during 1924 and 1925.) M. Ros. Schw. Bauz. July 24, '26.

D. Highways

c. Construction

Experimental Sand-Clay Road in Michigan.* A. R. Bailey. (Paper read before Univ. of Michigan.) Mun. & Co. Eng. July, '26.
Flow of Water Through Culverts. (From Bulletin issued by Univ. of Iowa.) Mun. & Co. Eng. July, '26.
Construction of Asphalt Pavements. Prevost Hubbard. (Paper read before N. Atlantic States Highway Official.) Can. Engr. July 20, '26.
Rapid Work in Repaving Lindell Boulevard in St. Louis.* W. W. Horner. Eng. N. R. July 29, '26.
Finishing and Curing of Concrete Roads.* C. L. McKesson. Am. Soc. C. E. Aug., '26.
Precast Concrete Curbing.* Eng. & Contr. (R. & P.) Aug., '26.
A Study of Unusual Earth Road Conditions.* Quincy C. Ayres. (From *Public Roads.*) Eng. & Contr. (R. & P.) Aug., '26.
Standardization of Grade Separation Design. C. F. Melick. (Paper read before Univ. of Mich.) Eng. & Contr. (R. & P.) Aug., '26.
Survey of Soil and Pavement Conditions. V. R. Burton. (From *Public Roads.*) Eng. & Contr. (R. & P.) Aug., '26.
Oil-Sand Road Building in Nevada.* Howard M. Loy. (From *Highway Magazine.*) Eng. & Contr. (R. & P.) Aug., '26.
Some Further Notes on Asphalt. W. J. Hadfield. Inst. Mun. & Co. Engrs. Aug. 3, '26.
Suggested Improvement in Macadam Road Design.* A. T. Goldbeck. (From *Journal,* Nat'l Crushed Stone Assoc.) Eng. N. R. Aug. 5, '26.
Impact Stress in Concrete Pavement by an Electric Strain Gage.* D. D. McGuire. Eng. N. R. Aug. 12, '26.

d. Maintenance

Maintenance of Gravel Roads in Wisconsin. N. M. Isabello. (From *Bulletin* issued by Wisconsin Highway System.) Mun. & Co. Eng. Juy, '26.
Surface Treatment of Macadam and Gravel Roads.* John N. Mackall. (Paper read before Am. Road Bldrs.' Assoc.) July, '26.
The Dust Problem on Gravel Roads. N. M. Isabella. (Paper read before Mississippi Valley Conference of State Highway Depts.) Eng. & Contr. (R. & P.) Aug., '26.
Methods of Repairing Concrete Roads.* A. H. Hinkle. (Paper read before Mississippi State Highway Depts.) Can. Engr. Aug. 10, '26.

e. Street Cleaning, Dust Prevention, Snow Removal

Snow Removal Problems of Organization and Operation.* George E. Hamlin. Am. Soc. C. E. Aug., '26.
Snow Removal on Mountain Pass Highways.* N. A. Bowers and C. H. Vivian. Eng. N. R. Aug. 19, '26.

h. Vehicles, Automobiles, Traffic

Traffic Control by Regulation and Design. R. deL. French. (From *Journal,* Town Planning Inst.) Can. Engr. Aug. 10, '26.

x. Miscellaneous

Soil Research in Ohio. F. H. Eno. Mun. & Co. Eng. July, '26.
Recent Results of Highway Research in Illinois. V. L. Glover. (From *American Highways.*) Mun. & Co. Eng. July, '26.

E. Bridges, Viaducts, and Arches

a. Timber Bridges and Viaducts

The Pathmaker's Memorial Bridge, Randolph, New Hampshire.* Eldredge H. Blood. Land. Arch. July, '26.

b. Iron and Steel Bridges and Viaducts

Spectacular Bridge Job on Merced River in California.* Eng. N. R. July 29, '26.
Fire in Deck Puts Large Bridge Out of Service.* Ry. Eng. & Main. Aug., '26.
Die Freihafen-Elbbrücke in Hamburg.* (The Elbe Free Port Bridge at Hamburg.) Schwoon. Ver. deu. Ing. June 12, '26.
Die neue zweigleisige Eisenbahnbrücke über den Rhein bei Duisburg-Hochfeld.* (The New Two-Track Railroad Bridge Over the Rhine at Duisberg-Hochfeld.) F. Brunner. Ver. deu. Ing. July 24, '26.

c. Stone Bridges and Viaducts

Remise en Etat de la Maconnerie des Voûtes et des Piles du Pont sur l'Aude à Carcassone (Ligne de Bordeaux à Cette) au Moyen d'Interjections de Ciment sous Pression.* (Repairing the Masonry of the Arches and Piers of the Bridge Over the Aude at Carcassone (Bordeaux-Cette Line) by Means of Injections of Cement Under Pressure.) Bouteiller. Rev. Gen. July, '26.

d. Concrete and Reinforced Concrete Bridges and Viaducts

Reconstruction du Pont de Luzancy sur la Marne.* (Reconstruction of the Luzancy Bridge Over the Marne.) Wahl. Ann. P. et C. Mar. '26.
Pont en Beton Arme sur l'Oued Saf-Saf e Philippeville (Algerie).* (Reinforced Concrete Bridge Over the Oued Saf-Saf at Philippeville, Algeria.) F. Willm. Gen. Civ. July 10, '26.
Neubau einer Eisenbetonbrücke über die "Alte Donau" zum städtischen Strandbad "Ganschaufel".* (Rebuilding of a Reinforced Concrete Bridge Over the "Old Danube" to the "Ganschaufel" Municipal Bathing Beach.) Rudolph Tillman. Oest. Ing. Arch. Ver. July 9, '26.
Nomogramme für einfach bewehrte Platten und Balken.* (Nomogram for Simple Reinforced Slabs and Beams.) J. Wachsmann. Oest. Ing. Arch. Ver. July 23, '26.

F. Inland Waters and Waterways

a. Natural Waterways (General Articles)

Interstate Water Problems and Their Solution. Discussion: D. C. Henny. Am. Soc. C. E. Aug., '26.

c. Regulation of Waterways—Volume of Discharge, Freshets, Floods, Soundings

Stream Regulation with Reference to Irrigation and Power.* Discussion: J. W. Swaren and William B. Landreth. Am. Soc. C. E. Aug., '26.
Relation of Depth to Curvature of Channels.* Discussion: Olin H. Landreth, Leonard C. Jordan, Lewis M. Haupt, B. Malaval, and David A. Molitor. Am. Soc. C. E. Aug., '26.

d. Diverting Dams, Locks, Lifts, Elevators, Inclined Planes

Keeping Salt Water Out of Lock-Controlled Waterways.* W. M. Meacham. Eng. N. R. Aug. 5, '26.

g. Consolidation of Banks, Leakage, etc.

Canal du Rhône au Rhin. Note sur les Deroctages des Parties en Rivière.* (Rhône to Rhine Canal. Note on Rock Removal from the Part in the River.) Guelle. Ann. P. et C. Mar., '26.

i. Traction, Haulage, Towing, Mechanical Tractors

A Study of the Effect of End Shape on the Towing Resistance of a Barge Model.* Harry Pease Cox. Mech. Engr. Aug., '26.

G. Maritime Works

c. Vessels and Maritime Navigation, Lighthouses, Buoys, Various Signals

Development of Wireless Fog Signals.* Dock & Harbour Aug. '26.
Further Research in the Problem of H. M. S. "Wolf".* G. H. Hoffmann. Eng. Serial beginning Aug. 13, '26.
Hamburgs Schiffbau.* (Shipbuilding at Hamburg.) E. Zetzmann. Ver. deu. Ing. June 12, '26.
Neuere Versuchserfahrungen der Hamburgischen Schiffbau-Versuchsanstalt.* (Recent Research Experiences of the Hamburg Institution for Shipbuilding Research.) Günther Kempf. Ver. deu. Ing. June 12, '26.
Neuere Probleme des Schiffbaues.* (Modern Shipbuilding Problems.) Herm. Frahm. Ver. deu. Ing. July 10, '26.

f. Maritime Rivers and Canals, Bank Protection

New Form of Bank Protection on the Sacramento River.* Paul Bailey. Eng. N. R. July 29, '26.
Behavior of Flexible Reinforced-Concrete Mattresses as Bank Protection on Deep Rivers.* B. Okazaki. Eng. N. R. Aug. 12, '26.

g. Dredges and Dredging, Force Pumps, Refloating and Removing Wrecks, Ice-Breakers

Raising the Submarine S-51.* Eng. N. R. Aug. 5, '26.
Das hamburgische Baggereiwesen.* (The Hamburg Dredging Plant.) M. Dohr. Ver. deu. Ing. June 12, '26.

i. Harbors (General Articles)

The Port of Montreal and Its Recent Activities.* Thomas W. Harvie. Dock & Harbour Aug., '26.
The Port of Marseilles.* M. Gourret. Dock & Harbour Aug., '26.

North Pacific Ports in Relation to World Commerce.* George F. Cotterill. (Paper read before Pacific Coast Assoc. Port Auth.) Dock & Harbour Aug., '26.
The Port of Antwerp.* K. Bollengier. (Paper read before Inst. Naval Archts.) Dock & Harbour Aug., '26.
Die mechanischen Umschlaganlagen im Hamburger Hafen.* (Mechanical Unloading Plant in the Port of Hamburg.) Wundram. Ver. deu. Ing. June 12, '26.
Der Hafen von Hamburg.* (The Hamburg Harbor.) L. Wendemuth. Ver. deu. Ing. June 12, '26.

j. Dockyard Machinery and Shopyards, Dry Docks

Construction de la Grande Forme de Radoub du Havre.* (Construction of the Great Graving-Dock at Havre.) Michel-Schmidt. Assoc. Ing. Gand. Pt. 2, '26.

H. Railroads. Street and Interurban Railways. Automobiles. Aeronautics

a. Railroads

1. General Articles
Suburban Services. Inst. Ry. Cong. Assoc. July, '26.
Development of Industrial Sites and Trackage Layouts at Kansas City, Kansas, and Los Angeles, California, by the Union Pacific System. Discussion: A. D. Butler, Lester Bernstein, and Augustus Hunt. Am. Soc. C. E. Aug., '26.
Savages Built This Railway (Khyber Railway). Mark Meredith. Ry. Rev. Aug. 14, '26.
"White Coal" Runs the Spanish Northern.* L. B. Rogers. Ry. Rev. Aug. 14, '26.
Uebersicht über die hamburgischen Bahnanlagen und ihre Erweiterungen.* (Survey of the Hamburg Railroad Installation and Its Enlargement.) Wilh. Stein. Ver. deu. Ing. June 12, '26.
3. Roadbed (Grading Construction Work)
Pennsylvania Completes 15-Mile Cut-Off in Eastern Ohio.* Ry. Age July 31, '26.
4. Track
Making Treated Ties Last Longer.* E. F. Robinson. Ry. Rev. July 17, '26.
Trains Run at High Speed Over Newly Completed Track.* Ry. Eng. & Main. Aug. '26.
How the Illinois Central Watches Its Transverse Fissures.* Ry. Eng. & Main. Aug., '26.
Four-Track Diversion Built by Pennsylvania R. R.* Eng. N. R. Aug. 19, '26.
5. Signals and Safety Apparatus
Dispatching or Control Systems. Inst. Ry. Cong. Assoc. July, '26.
Fixed Signals. Int. Ry. Cong. Assoc. July, '26.
Florida East Coast Installs Signals.* W. A. Hoffman. Ry. Age. July 31, '26.
Electric Track Brake for Gravity Switching in France.* Eng. N. R. Aug. 5, '26.
Train Stop Without Permissive Wayside Signals Used on I. C.* P. M. Gault. Ry. Age Aug. 14, '26.
6. Rolling Stock (Locomotives, Cars) Fuel
Besondere Bauarten der Dampflokomotive.* (Special Types of Steam Locomotives.) Karl Schloss. Schw. Bauz. June 25, '26.
Locomotive Power Rating and Tractive Force.* R. Eksergian. Ry. Rev. July 17, '26.
Gear Transmission for Diesel Engine.* B. A. Wittkuhns and N. Fodor. Ry. Age July 24, '26.
Refrigerators Cars Tested in Fruit Service.* Ry. Rev. July 31, '26.
Axle Failures in Cold Weather.* Norman Litchfield. Ry. Age July 31, '26.
Transmission of Power on Oil Engine Locomotives.* Alphonse I. Lipetz. Mech. Eng. Serial beginning Aug., '26.
Locomotive Design and Construction.* Ry. Rev. Aug. 7, '26.
High-Pressure Three-Cylinder Compound Express Locomotive.* Eng. Aug. 13, '26.
French Four-Cylinder Compound 4-8-2 Type Locomotive.* M. Chambon. Ry. Age Aug. 14, '26.
Power Utilization and Repair Costs.* Lawrence Richardson. Ry. Age Aug. 21, '26.
7. Use of Electricity
Electrification of I. C. Suburban Service Completed.* Ry. Age July 24, '26.
L'Usine Hydro-Electrique d'Eguzon et l'Electrification des Chemins de Fer de la Compagnie d'Orléans.* (The Eguzon Hydro-Electric Plant and the Electrification of the Railroads of the Orleans Company.) Ch. Dantin. Gen. Civ. July 3, '26.
Commande Electrique Semi-Automatique des Aguilles de Faisceaux de Triage sur le Reseau des Chemins de Fer de l'Est.* (Semi-Automatic Electrical Operation of the Switches of Sorting Yards on the Chemins de Fer de l'Est System.) Ch. Dantin. Gen. Civ. July 24, '26.
8. Stations, Terminals, Engine Houses, Shops
Burlington Smooths Out Bridge Material Problem.* Ry. Age July 31, '26; Ry. Eng. & Main. Aug., '26.
Illinois Central Completes Markham Yard.* Ry. Age Aug. 7, '26.
Terminal Warehouse at Toronto, Ont.* Charles H. Kahrs. Can. Engr. Aug. 10, '26.
Southern Pacific Builds Station at Sacramento, Cal.* Ry. Age Aug. 14, '26.
Northern Pacific Junks Engines Cheaply.* Ry. Age Aug. 21, '26.
9. Technical and Commercial Use.
Long Island Uses Motor Vehicles to Reduce Congestion.* Ry. Age July 24, '26.
Buses Replace Trains on N. C. & St. L. Branch.* Ry. Age July 24, '26.
New England a Maze of Bus and Truck Routes.* Ry. Rev. July 31, '26.

b. Special Railroads

2. Aerial Railroads
Zur Eröffnung der Raxbahn.* (On the Opening of the Rax Road.) Oest. Ing. Arch. Ver. June 11, '26.
Die neuen eidgen. Vorschriften für den Bau von Luftseilbahnen für Personenverkehr. (The New Federal Rules for the Construction of Aerial Cableways for Passenger Transport.) Schw. Bauz. July 17, '26.
Der Umbau der Seilbahn Lugano-San Salvatore.* (The Reconstruction of the Lugano-San Salvatore Cableway.) Franz Hunzikar. Schw. Bauz. Serial beginning July 24, '26.

d. Street Railway, Elevated Railways, Subways

1. General Articles

London Electric Railways: Extensions.* Engr. Serial beginning July 23, '26.
New York's Third Subway Under Construction.* Lazarus White. Eng. N. R. Aug. 5, '26.

5. Rolling Stock

Ein neues Tramwagenuntergestell.* A New Tramcar Underframe.) J. Buchli. Oest. Ing. Arch. Ver. July 23, '26.

f. Aeronautics

1. General Articles

English Air Transport. Sefton Brancker. Engrs. & Eng. July 15, '26.
The Airship in War and Peace. George W. Steele. Engrs. & Eng. July 15, '26.
The Air Mail. Chas. C. Gove. Engrs. & Eng. July 15, '26.

I. Municipal Water-Works. Agricultural Engineering. Irrigation

a. General Articles

New Water Supply System at Tampa, Florida.* Nicholas S. Hill. N. E. W. W. Assoc. June, '26.
Description of Public Water Supplies of Rhode Island. Stephen DeM. Gage. N. E. W. W. Assoc. June, '26.
Accounting Methods for Water Works. Harold D. Smith. (From Kansas Municipalities.) Mun. & Co. Eng. July, '26.
The Hetch-Hetchy Water Supply of the City of San Francisco.* Eng. Serial beginning July 16, '26.
The Water Works from the Viewpoint of the Architect.* V. A. Matteson. Am. W. W. Assoc. Aug., '26.
The Public Water Supplies of Montana.* H. B. Foote. Am. W. W. Assoc. Aug., '26.
Bristol Water Works. J. A. McPherson. Inst. Mun. & Co. Engrs. Aug. 3, '26.
Toronto Duplicate Water Works System. Can. Engr. Aug. 10, '26.
Toronto Duplicate Water Works System. Can. Engr. Aug. 17, '26.

b. Hydrology, Water Resources

Rainfall in New England. X. H. Goodnough. N. E. W. W. Assoc. June, '26.
Die neue Wasserversorgungsanlage der Stadt Burgas unter Benützung einer Thermalquelle.* (The New Water Works of the City of Burgas by Use of a Hot Spring.) Kurt Mauthner. Oest. Ing. Arch. Ver. July 9, '26.
Die Sicherungsmassnahmen im Quellengebiete der I. Wierner Hochquellenleitung.* (Safety Measures in the Collection District of the 1 Vienna Mountain Water Supply.) Franz Schönbrunner. Oest. Ing. Arch. Ver. July 9, '26.

c. Dams and Reservoirs

Rebuilding Reservoir That Failed at South Pasadena.* Ormond A. Stone. Eng. N. R. July 29, '26.
Stresses in Thick Arches of Dams.* Discussion: Elmo G. Harris, Lars R. Jorgensen, Fredrik Vogt, and George Paaswell. Am. Soc. C. E. Aug., '26.

d. Analysis and Purification of Water

Zeolite Water Softeners for Domestic Use. W. C. Hirn and E. F. Eldridge. Mun. & Co. Eng. July, '26.
Home-Made Electrolytic Chlorine at Sacramento.* Harry N. Jenks. Eng. N. R. July 29, '26.
The Oswestry Filter Beds of the City of Liverpool Water-Works.* Eng. July 30, '26.
New Filtration Plant at Walton-on-Thames.* Engr. Serial beginning July 30, '26.
Typhoid Fever in the Large Cities of the United States in 1925.* Am. W. W. Assoc. Aug., '26.
A Study of Currents in Lake Erie at Erie, Pa.* D. E. Davis. Am. W. W. Assoc. Aug., '26.
Goiter and the Public Water Supply. H. M. Johnson. Am. W. W. Assoc. Aug., '26.
The Effect of Fresh Color on Coagulation at the Cambridge Massachusetts Water Purification Works.* Harold C. Chandler. Am. W. W. Assoc. Aug., '26.
Early Examination of Water Supply in Colorado.* William C. Mitchell. Am. W. W. Assoc. Aug., '26.
The Iodine Content of Pennsylvania Water Supplies. Francis E. Daniels. Am. W. W. Assoc. Aug., '26.
Phenol Waste Pollution of Water Supplies. D. M. Watt. (Paper read before Penn. W. W. Assoc.) Eng. & Contr. (W. W.) Aug., '26.

e. Distribution of Water

Report Upon the Practicability of Standardizing Meter Dials. N. E. W. W. Assoc. June, '26.
Welded Pipe Line Construction, Oakland, Calif. John B. Abell. Mun. & Co. Eng. July, '26.
Linings and Coverings for Water Pipes. Benjamin Talbot. Can. Engr. July 20, '26.
Pipe Laying Methods. John W. Toyne. Am. W. W. Assoc. Aug., '26.
The Prevention of Corrosion of Pipe.* William W. Brush. Am. W. W. Assoc. Aug., '26.
The Financing of Irrigation Developments by Private Capital. Discussion: Edward Mead and F. H. Newell. Am. Soc. C. E. Aug., '26.
Land Settlement of Irrigation Projects. Discussion: R. A. Hart, R. K. Tiffany, and F. H. Newell. Am. Soc. C. E. Aug., '26.
Evaporation on United States Reclamation Projects.* Discussion: Reuben B. Sleight, Lynn Perry, Ralph L. Parshall, S. T. Harding, Charles H. Lee, C. M. O'Neil, and J. B. Lippincott. Am. Soc. C. E. Aug., '26.
Electrification of the Lafayette, Indiana, Water Supply. John W. Moore. Am. W. W. Assoc. Aug., '26.
Coordination of Fire Fighting Facilities. George W. Booth. Am. W. W. Assoc. Aug., '26.

Concrete Pipe for Alkali Soils.* D. G. Miller. (Paper read before Am. Soc. Agricultural Engrs.) Eng. & Contr. (W. W.) Aug., '26.
Irrigation District Served by Series of Pumping Plants.* Eng. N. R. Aug. 5, '26.
Neueste automatische Pumpwerke für Wasserversorgungs-Anlagen.* (Newest Automatic Pumps for Water Works.) Rudolf Müller.* Oest. Ing. Arch. Ver. July 9, '26.

f. Drainage of Land

Behavior of Radio Receiving Systems to Signals and to Interference.* Leo James Teters. A. I. E. E. Aug., '26.
Present Policy of the United States Bureau of Reclamation Regarding Land Settlement. Discussion: George C. Kreutzer and O. L. Waller. Am. Soc. C. E. Aug., '26.
New Rubber and Fabric Staunching Device for Gates.* Julian Hinds. Eng. N. R. Aug. 12, '26.

J. Sewerage. Sewage and Refuse Disposal

a. Sewers and Drains

Laying 42-In. Concrete Pipe Sewer on Ocean Bottom.* Eng. N. R. Aug. 19, '26.

b. Sewage Disposal, Purification

Air Drying of Sewage Sludge on Glass Covered Sand Beds. Floyd G. Browne and Frank Woodbury Jones. (Paper read before N. J. Sewage Works Assoc.) Mun. & Co. Eng. July, '26.
Practical Application of New Jersey Sewage Experiments. Weston Gavett and Richard H. Gould. (Paper read before N. J. Sewage Assoc.) Mun. & Co. Eng. July, '26.
Investigations of Stream Pollution. W. H. Frost. Mun. & Co. Eng. July, '26.
The Duties of a Resident Engineer on a Sewage Scheme. Harvey R. Sayer. Inst. Mun. & Co. Eng. July 20, '26.
North Toronto Sewage Disposal Report.* Can. Engr. July 27, '26.
Operations of Baltimore Sewage-Works, 1920 to 1925.* C. E. Keefer. Eng. N. R. July 29, '26.
Sewage Sludge Marketed for Three Years at Schenectady, N. Y.* Morris M. Cohn. Eng. N. R. Aug. 12, '26.
New Activated-Sludge Plant of Essen, Germany.* Karl Imhof. Eng. N. R. Aug. 19, '26.
Haffkrankheit und Abwasser der Stadt Königsberg.* ("Bay Disease" and Sewage of the City of Königsberg.) H. Selter. Gesund. Ing. July 3, '26.
Die Reinhaltung der unteren Ruhr von Mülheim bis Duisburg.* (Maintenance of the Purity of the Lower Ruhr from Mülheim to Duisberg.) Spetzler. Z. d. Bauver. July 7, '26.

K. Heat Engines

a. Steam Engines, Boilers

L'Emploi du Charbon Pulvérisé au Chauffage des Chaudières à Vapeur.* (The Use of Pulverized Coal for Heating Steam Boilers.) M. Orengo. Soc. Ing. Civ. Fr. Pt. 5, '26.

c. Gas and Oil Engines

Der 15 000 PS-Dieselmotor, Bauart Man, erbaut von Blohm & Voss für die Hamburgischen Electricitätswerke.* (The Man Type 15 000 h. p. Diesel Engine Built by Blohm & Voss for the Hamburg Electric Works.) W. Laudahn. Ver. deu. Ing. June 12, '26.

L. Electricity

b. Distribution and Transmission of Electricity

2. Magneto and Dynamo-Electric Machines

Economic Base Width of Transmission Towers.* C. R. Young and others. Can. Engr. Aug. 17, '26.

x. Miscellaneous

Some Features of the Economics of Electrical Distribution.* J. M. Kennedy. Eng. Aug. 13, '26.

d. Mechanical Uses of Electricity

2. Servomotors, Hoists, Elevators, Handling Machinery

The Structural Design of Electric Traveller Crabs.* E. G. Fiegehen. Engr. Aug. 13, '26.

f. Signals and Communication

The Rugby Radio Station of the British Post Office.* E. H. Shaughnessy. (Paper read before Inst. E. Engrs.) Eng. Serial beginning July 30, '26.
Report of Committee on Electrical Communication.* A. I. E. E. Aug., '26.
Les Cables Téléphoniques pour Communications à Longue Distance.* (Telephone Cables for Long Distance Communication.) F. Marchay. Gen. Civ. Serial beginning July 3, '26.

x. Miscellaneous

The Present and Future Development of Electricity Supply. John F. C. Snell. (Paper read before British Assoc.) Eng. Aug. 13, '26.
Das Forschungslaboratorium des Siemens-Konzerns in Siesmensstadt bei Berlin.* (The Research Laboratory of the Siemens Concern in Siesmensstadt near Berlin.) Hermann Schmitz. Z. d. Bauver. July 7, '26.

M. Architecture

b. Business and Commercial Buildings

Steel-Frame Office Building with 555½ Ft. Tower.* Eng. N. R. Aug. 19, '26.

f. Factories and Mill Buildings

A Cane-Sugar Mill and Plantation in Florida.* Eng. N. R. Aug. 12, '26.

g. Other Buildings

Das Amalienbad der Stadt Wien.* (The Amelia Baths of the City of Vienna.) Johann Barousch and Viktor Laurer. Oest. Ing. Arch. Ver. July 9, '26.

h. Roofs, Domes

Steel Truss Roof for Chicago Riding Club.* Eng. N. R. Aug. 12, '26.

i. Fire Protection

Decreasing Indiana's Fire Loss. Clarence Goldsmith. Am. W. W. Assoc. Aug., '26.

O. Administration. Legislation. Economics. Statistics

b. Economic Questions of a General Character; Valuations, etc.

Financing Public Utility Corporations. Martin J. Insull. West. Soc. Engrs. June, '26.
Light and the Elimination of Waste. W. E. Conley. West. Soc. Engrs., June, '26.
Some Phases of Industrial Relations. Homer E. Niesz. West. Soc. Engrs. June, '26.
Trend of Construction Cost of Certain Public Utilities.* Discussion: Frank C. Wight and J. W. Hummer. Am. Soc. C. E. Aug., '26.

R. Landscape Engineering

The Relation of the Landscape Architect to the State Park Movement. S. Herbert Hare. Land. Arch. July, '26.

S. City Planning

Town and Regional Planning. G. L. Pepler. Inst. Mun. & Co. Eng. July 20, '26.
Re-Planning and Re-Development in Built Areas.* W. T. Lancashier. Inst. Mun. & Co. Eng. July 20, '26.
Notes on the Bristol Housing Scheme.* A. H. Claypoole. Inst. Mun. & Co. Engrs. Aug. 3, '26.
Some Notes Introducing a Discussion on Regional Town Planning. W. A. Macartney. Inst. Mun. & Co. Engrs. Aug. 3, '26.
Town Planning: Some General Considerations. I. G. Gibbon. Inst. Mun. & Co. Engrs. Aug. 3, '26.

Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers. A Chicago office is maintained in co-operation with the Western Society of Engineers, and a San Francisco office, in co-operation with the Engineers' Club of San Francisco and the California Section of the American Chemical Society. The Service is available only to the several memberships and is maintained by contributions from the Societies and their individual members who are directly benefited.

Offices.—Eastern Office, 33 West 39th Street, New York, N. Y., Walter V. Brown, Manager; Chicago Office, 53 West Jackson Boulevard, Room 1736, Chicago, Ill., A. Krauser, Manager; and San Francisco Office, 57 Post Street, Room 715, San Francisco, Calif., Newton D. Cook, Manager.

Men Available.—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Names and records will remain in the active files of the Service for a period of three months, and are renewable on request. Notices for *Proceedings* should be addressed to Employment Service, 33 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

Opportunities.—A Bulletin of engineering positions available is published weekly and may be obtained by members of the Societies concerned at a subscription rate of $3 per quarter, or $10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

Voluntary Contributions.—Members obtaining positions through the medium of this Service are invited to co-operate with the Societies in the financing of the work by nominal contributions made within thirty days after placement, on the basis of $10 for all positions paying a salary of $2 000 or less per annum; $10 plus 1% of all amounts in excess of $2 000 per annum; temporary positions (of one month or less), 3% of total salary received. The income contributed by the members, together with the finances appropriated by the four Societies named, will be sufficient, it is hoped, not only to maintain but to increase and extend the service.

Replies to Announcements.—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with a two-cent stamp attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Service after the positions to which they refer have been filled, will not be forwarded.

POSITIONS AVAILABLE

STRUCTURAL ENGINEER; age 26 to 32; familiar with shop and design practice of steel fabricators. Should be thoroughly familiar with detailing, a fair draftsman, have good theoretical knowledge of his line and good judgment in design. Familiarity with theory and some practice in reinforced concrete construction very desirable. Should be engineering not commercial type, capable of development in organization of small office. Small work of all kinds. Salary $200–$300 per month. Apply by letter. Location, Utah. X—689–R–235–S.

MEN AVAILABLE

FORMER PROFESSOR OF CIVIL ENGINEERING, M. Am. Soc. C. E.; Registered Civil Engineer; with sixteen years' diversified practical experience, desires a connection with a large opportunity for usefulness in which he may utilize a thorough knowledge of the profession. B–3354.

SPECIALIST IN HIGHWAY ENGINEERING, M. Am. Soc. C. E., S. B. in C. E., M. I. T.; Post-Graduate work in Highway Engineering and Engineering Administration at M. I. T. Twelve years' experience, primarily highway construction. Present salary $5 000 as executive engineer. Desires new connection, preferably with contractor. Location immaterial. B–6574.

STRUCTURAL EXECUTIVE, M. Am. Soc. C. E.; age 45. Twenty years' experience, detailing, designing, estimating, cost-keeping, selling structural steel and ornamental iron. Now sales manager for manufacture of structural steel, ornamental and gray iron foundry. Available sixty days' notice. Location, United States. B–7445.

CONSTRUCTION SUPERINTENDENT, Assoc. M. Am. Soc. C. E.; age 33; married. Sixteen years' experience on all classes of construction. Last 8 years employed by public utility corporations on power-house and water-works construction. Available in 15 days. Location, immaterial. B–9572.

INSTRUMENTMAN; age 24; married. Experienced in real estate development, paving of streets, concrete foundations, general grading work, drafting. Available immediately. Location, Central Atlantic States. B–9929.

MECHANICAL ENGINEER, Affiliate, Am. Soc. C. E.; graduate; age 32. Long experience in mechanical work, drawing, and machinery. Thiry months' experience in construction work, such as dams, highways, surveying, and mapping. Can master well correspondence and reports in English and Portuguese. At present, Professor in the Agricultural and Engineering College in Brazil. Preferable location, Southern State of Brazil. Available on reasonable notice. C–1678.

Membership

(From August 4, to September 7, 1926)

Additions

		Date of Membership.
ARTHUR, Malcolm Boyd. Designer, New England Power Co., 35 Harvard St. (Res., 11 Armandale St.), Worcester, Mass.	Jun. Assoc. M.	Jan. 17, 1921 Aug. 30, 1926
BARNES, Albert Edward. 1824 Arch St., Philadelphia, Pa.	Jun.	July 12, 1926
BARNES, Hugh Donald. Div. Engr., State Highway Comm., Box 231, Chanute, Kans.	Assoc. M.	July 12, 1926
BEAL, Charles Hoctor. With City of Omaha (Res., 1113 South 33d St.), Omaha, Nebr.	Jun.	Aug. 30, 1926
BLACK, Robert Alexander. Asst. Structural Engr., South Park Comm. (Res., 7407 Kingston Ave.), Chicago, Ill.	Assoc. M.	July 12, 1926
BOWDEN, Nicholls White. Prin. Asst. Engr., State Highway Comm., Baton Rouge, La.	Assoc. M.	Mar. 15, 1926
BURNETT, Bruce Burt. Asst. Engr., U. S. Forest Service, Ferry Bldg., San Francisco, Calif.	Assoc. M.	July 12, 1926
CHILDS, John Warren. Bridge Engr., State Highway Dept., Patriot Bldg., Concord, N. H.	Assoc. M.	Mar. 15, 1926
COULCHER, George Edwin Bohun. Deputy Res. Engr., Harbour Works, Lagos, Nigeria, West Africa	M.	June 7, 1926
DOWNEY, James Francis, Jr. Engr., Bethlehem Steel Corporation (Res., 413 Main St.), Bethlehem, Pa.	Jun. Assoc. M.	Feb. 25, 1924 Aug. 30, 1926
ENGSTROM, Wallace Richard. Field Asst., Austin Co., 877 Dexter-Horton Bldg., Seattle, Wash.	Jun.	Mar. 15, 1926
EREMIN, Anatol Alexander. Designing Engr. for Alameda County, 1645 Stuart St., Berkeley, Calif.	Assoc. M.	Mar. 15, 1926
FISHER, Linden Van Horn. Care, State Highway Dept., Frankfort, Ky.	Jun. Assoc. M.	Oct. 10, 1921 Aug. 30, 1926
FISHER, George Henry Beatty. Secy., Eng. Dept., Canadian & General Finance Co., Ltd., 357 Bay St., Toronto, Ont., Canada.	Affiliate	Aug. 30, 1926
FOLK, Samuel Byron. Asst. Prof. of Mechanics, Ohio State Univ., 71 West 10th Ave., Columbus, Ohio.	Assoc. M.	July 12, 1926
FRASER, Garrett Alexander. Care, R. B. Creager, Brownsville, Tex.	Assoc. M.	Mar. 15, 1926
GLADFELTER, Herbert Spencer. Asst. Engr., Mississippi River Dredging Dist. (Res., 1571 Foster Ave.), Memphis, Tenn.	M.	April 12, 1926
GRASSMAN, Herbert Stuyvesant. Engr. of Design, Dept. of Water Supply, Waterworks Park, Detroit, Mich.	Jun. Assoc. M.	Oct. 8, 1918 Aug. 30, 1926
GRAY, Leon Morley. Field Engr., Black, McKenney & Stewart, 1653 Pennsylvania Ave., N. W. Washington, D. C.	Jun. Assoc. M. M.	Aug. 31, 1909 May 28, 1912 July 12, 1926
GREENE, John Quincy Adams. Field Mgr. and Treas., Gunite Concrete & Constr. Co., 114 West 10th St., Kansas City, Mo.	Assoc. M.	Aug. 30, 1926
HANCOCK, Austin Pruitt. Asst. to F. J. Von Zuben (Res., 1831 Fifth Ave.), Fort Worth, Tex.	Assoc. M.	Aug. 30, 1926
HARPER, Carl S. Chf. Draftsman, Harrington, Howard & Ash; 3531 Bales Ave., Kansas City, Mo.	Assoc. M.	Aug. 30, 1926
HARRISON, Cecil Eli. Washington Apartment B1, Nashville, Tenn.	Jun.	July 12, 1926
HASKINS, Henry Benners. Asst. Supt., Lighthouse Service, 7th Lighthouse Dist., Box 284, Key West, Fla.	Assoc. M.	Aug. 30, 1926
HUNTER, Homer Alexander. 3341 Jennings Ave., Fort Worth, Tex.	Jun.	Mar. 15, 1926
ISRAELSEN, Orson Winso. Prof., Irrig. and Drainage, Utah Agri. Coll., Logan, Utah.	Assoc. M.	June 7, 1926
JAGGER, James Edwin. Care, Robert L. Totten, Inc., 434 Brown-Marx Bldg., Birmingham, Ala.	Jun.	Mar. 15, 1926
JANDA, Harold Frederick. Associate Prof., Highway Eng., Univ. of North Carolina, Chapel Hill, N. C.	Assoc. M.	June 7, 1926
KERCH, Walter Washington. Civ. Engr., First National Bank Bldg., Granite City, Ill.	M.	Aug. 30, 1926
KETCHUM, Karl Edward. 2189 Canton Ave., Detroit, Mich.	Jun.	July 12, 1926
KIPP, Frederick Martin, Jr. Civ. Engr., Baltimore City Water Dept. (Res., 3705 Chestnut Rd.), Baltimore, Md.	Jun. Assoc. M.	Jan. 6, 1915 Mar. 15, 1926
LOHMAN, Fred Stiles. 229¼ South Bonnie Brae St., Los Angeles, Calif.	Jun.	Jan. 18, 1926
McCREE, Andrew Amos. Contr. and Engr. (McCree & Co.), 315 Hackney Bldg., St. Paul, Minn.	M.	Aug. 30, 1926

MEMBERSHIP—(*Continued*)

	Date of Membership.
MANETTA, William Joseph. Draftsman and Structural Designer, East Bay Water Co., 512 Sixteenth St., Oakland (Res., 922 Ventura Ave., Berkeley), Calif.	Assoc. M. July 12, 1926
MARTIN, Laurence Edward. Asst. Engr., Florida East Coast Ry., 25 Sevilla St., St. Augustine, Fla.	Assoc. M. Mar. 15, 1926
MENGEL, Forest Foster. Div. Engr., State Highway Comm., Box N, Wisconsin Rapids, Wis.	M. Aug. 30, 1926
NAGLER, Floyd August. Associate Prof., Mechanics and Hydraulics, State Univ. of Iowa, Iowa City, Iowa.	Jun. Mar. 14, 1916 Assoc. M. May 13, 1918 M. July 12, 1926
OKEY, Frank Morris. Prof., Civ. Eng. and Head of Dept., Colorado Coll., Colorado Springs, Colo.	Assoc. M. Mar. 15, 1926
OLDHAM, Jennings Bryan. Engr., Service Dept., Texas Portland Cement Co., 1401 Santa Fe Bldg., Dallas, Tex.	Jun. May 19, 1924 Assoc. M. April 12, 1926
PERRY, Emmanuel von Betzen. Structural Engr., Hubbell & Benes, 4500 Euclid Ave., Cleveland, Ohio.	Jun. Feb. 25, 1924 Assoc. M. Mar. 15, 1926
PHILLIPS, Preson Peek. Designing Engr., Gilbert C. White Co. (Res., 905 Dacian Ave.), Durham, N. C.	Assoc. M. June 7, 1926
QUINONES, Salvador. Box 231, Rio Piedras, Porto Rico.	Jun. July 12, 1926
READ, William Arthur. In Chg., U. S. Engr. Office, Box 288, Tampa, Fla.	Assoc. M. June 7, 1926
RIDLEY, Elgan McNeil. Instrumentman with A. E. Anderson, Box 189, Brownsville, Tex.	Jun. June 7, 1926
ROBY, James Aris. Div. Engr. State Highway Comm., Garden City, Kans.	Assoc. M. July 12, 1926
ROGERS, Albert William. Res. Engr., Samana & Santiago Ry., Sanchez, Dominican Republic.	Jun. July 12, 1926
ROOT, Harold Oden. 578 Hargrave St., Inglewood, Calif.	Assoc. M. Mar. 15, 1926
ROSS, Kenneth Ward. Engr., George F. Hardy, 309 Broadway, New York, N. Y.	Jun. Oct. 10, 1921 Assoc. M. July 12, 1926
SAHLBERG, Manley William. 406 Mitau Bldg., Sacramento, Calif.	Assoc. M. July 12, 1926
SALZMAN, Milton Gremmels. Asst. Hydr. Engr. with R. D. Johnson, 67 Wall St., New York, N. Y.	Jun. Mar. 15, 1926
SCHWERIN, Benjamin. Asst. Engr., N. Y. Pitts. & Chi. R. R.; Topographical Draftsman, Board of Estimate and Apportionment, Room 2700, Municipal Bldg., New York, N. Y.	Assoc. M. Aug. 30, 1926
SHANLEY, John Francis. Supt., Clay Min. Dept., Standard Oil Co. (Indiana), Olmstead, Ill.	Assoc. M. Aug. 30, 1926
SHU, Ruf. Asst. Engr., Mason L. Brown & Son, 197 Beresford Ave., Highland Park, Mich.	Jun. Aug. 30, 1926
SMITH, Charles Francis. 108 North Romine St., Urbana, Ill.	Jun. July 12, 1926
SMITH, William Howard. Assoc. Engr., National Park Service, 5766 Broadway, Oakland, Calif.	Assoc. M. July 12, 1926
STEARNS, Fred Lincoln. Draftsman, Third Ave. R. R. Co. of N. Y., 34 Setz Pl., Scarsdale, N. Y.	Affiliate June 3, 1902 Assoc. M. Jan. 31, 1905 M. July 12, 1926
SUGG, Glenn Edward. Care, Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.	Jun. Mar. 15, 1926
TULLY, Edward John. Asst. to Operating Engr., Met. Utilities Dist., Room 208, City Hall, Omaha, Nebr.	Assoc. M. Aug. 30, 1926
TWICHELL, Trigg. Junior Engr., Water Resources Branch, U. S. Geological Survey, Box V, Capitol Station, Austin, Tex.	Jun. June 7, 1926
VOGEL, Andrew. Engr.-in-Chg., Plant Eng., Dept., Gen. Elec. Co. (Res., 611 Lenox Rd.), Schenectady, N. Y.	Assoc. M. May 31, 1916 M. July 12, 1926
WADDINGTON, Robert Raymond. Sales Engr., Johns-Manville, Inc., 292 Madison Ave., New York, N. Y. (Res., 260 Second Ave., East, Roselle, N. J)	Jun. Oct. 2, 1922 Assoc. M. July 12, 1926
WALTERS, Roswell Allen. Engr., State Land Dept., Phœnix, Ariz.	Assoc. M. April 12, 1926
WARD, Clayton Norman. Engr., Mead & Seastone (Res., 2225 Rowley Ave.), Madison, Wis.	M. July 12, 1926
WHANNEL, Raymond Leonald. Supt. of Bldgs., Dept. of Public Health and Safety (Res., 400 South Illinois St.), Springfield, Ill.	Jun. Aug. 30, 1926
WINDES, Frank Arner. Pres., Windes & Marsh, 598 Birch St., Winnetka, Ill.	M. June 7, 1926
WISSING, John Lee. With Highway Dept., Bergen County, Box 140, Haworth, N. J.	Assoc. M. Aug. 30, 1926
WRIGHT, Purd B, Jr. With Burns & McDonnell Eng. Co. (Res., 3626 Walnut St.), Kansas City, Mo.	Jun. Aug. 30, 1926

Deaths

BLAND, Miles Carlisle. Elected Associate Member, September 3, 1902; Member, April 21, 1920; died August 14, 1926.

DABNEY, Augustine Lee. Elected Member, October 2, 1901; died August 23, 1926.

DEEN, James Work. Elected Member, January 6, 1892; died July 27, 1926.

GORIACHKOVSKY, Vladimir. Elected Member, November 25, 1919; died August 9, 1926.

HOOD, William. Elected Member, October 7, 1896; died August 26, 1926.

KIBBE, Augustus Sayre. Elected Junior, March 6, 1889; Member, August 31, 1909; died August 21, 1926.

OLMSTED, Ashbel Edward. Elected Member, May 6, 1903; died August 15, 1926.

SMITH, Ralph Jerome. Elected Associate Member, October 10, 1921; died August 8, 1926.

TILLINGHAST, Frederick Howard. Elected Associate Member, May 1, 1907; Member, April 1, 1914; died July 15, 1926.

Total Membership of the Society, September 7, 1926

Members	**5 133**	
Associate Members	**5 370**	
Corporate Members		**10 503**
Honorary Members		**15**
Juniors		**948**
Affiliates		**149**
Fellows		**8**
Total		**11 623**